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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BROWN, COURTNEY A

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

08/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,985	Applicant(s) JOSEF, ALEXANDER	
	Examiner COURTNEY BROWN	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8-10,12-19,21-24,26 and 28-40 is/are pending in the application.
- 4a) Of the above claim(s) 28-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8-10,12-19,21-24,26 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Receipt/Status of Claims

This Office Action is in response to the amendment filed May 19, 2009. Claims **1,2, 4-6,8-10,12-19,21-24,26 and 28-40** are pending in the application. Claims **3,7,11,20,22,25 and 27** have been cancelled. Claims **1** and **40** have been amended. Claims **28-39** have been withdrawn as being directed to a non-elected invention. Claims **1,2, 4-6,8-10,12-19,21-24,26 and 40** are being examined for patentability.

Rejections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

The rejection of claims 1,2,4-6,8-10,12-19,21,23,24,26, and 40 under 35 U.S.C. 103(a) as being unpatentable over Alyeshmerni (WO 00/76941 A1) in view of Dean et al., (US Patent 6,245,717 B1) and Freepons (US Patent 5,139,555) **is maintained**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2,4-6,8-10,12-19,21,23,24,26, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alyeshmerni (WO 00/76941 A1) in view of Dean et al., (US Patent 6,245,717 B1) and Freepons (US Patent 5,139,555).

Applicant's Invention

Applicant claims a solidified molten homogeneous mixture; the molten mixture containing phosphorous acid and at least one other NPK nutrient, metal microelements, and a base selected from potassium carbonate and potassium hydroxide in an amount to at least partially neutralize said acid, at a temperature of from 60°C to 130°C; cooled and broken to water-soluble, granular, free-flowing agrochemical composition, not leaving harmful or useless deposits in the soil, of uniform particle size containing from 0% to 1% water.

Determination of the scope and the content of the prior art (MPEP 2141.01)

Alyeshmerni teaches a solid or granular fertilizer formulation (page 9, lines 15-24) that comprises: a salt of **phosphorous-containing acid**; a base (which includes reacting said phosphorous-containing acid with a base such as **KOH**, and harnessing the exothermic heat generated to effectively **evaporate water**, thereby leaving a relatively pure, concentrated fertilizer, see page 5, line 29-33; page 8, lines 6-12; figure 1 and page 12, reaction 2 for phosphite synthesis, line 5); other **NPK nutrients such as monopotassium phosphite** (page 7, lines 1--14); and **microelement compounds such as copper, zinc, boron, magnesium, iron, calcium, sulfur, manganese, and molybdenum** (page 15, lines 14-16 and Figure 3). Alyeshmerni also teaches a

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preferable pH of the formulation being 3.5-4.5 (page 13, lines 27-29) and how to achieve a desired pH for the formulation (page 19, lines 4-30).

***Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)***

The difference between the invention of the instant application and that of Alyeshmerni is that the instant invention requires that the NPK nutrient have a uniform particle size in the form of metal microelements and the use of additives and water. For this reason, Dean et al. is joined. Dean et al. teach a composition that may be in the form of a granule, diluted with water (column 4, lines 54-63) that may include one or more surfactants (column 4, lines 41-42, claims 8, 9, and 13 of instant application); humic acid (column 8, line 66, claims 8 and 13 of instant application); water (column 5, lines 8-31, claims 20 and 21 of instant application); micronutrients such as zinc, iron, copper, magnesium, boron, and molybdenum (column 6, lines 62-64 and claims 4 and 6 of instant application); and complexing agents (metal microelements of instant application) such as ferrous chloride (column 7, line 60-end to column 8, lines 1-24, claims 4 and 6 of instant application).

Another difference between the invention of the instant application and Alyeshmerni is that the instant application claims a solid, granular, free-flowing, water-soluble composition that is a solidified molten homogeneous mixture and does not leave harmful or useless deposits in the soil. For this reason, the teaching of Freepons is joined. Freepons teaches fertilizer granular products made from fine particles of a

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nitrogen source together with a binder that is compatible with soil wherein any residue of said binder is either inert, biodegradable, soil conditioning, or have plant nutrient value (column 7, line 54 bridging to column 55, lines 1 and 2). Freepons additionally teaches that the aforementioned granular fertilizer product is hardened from a molten state that enrobes particles (column 8, lines 19-26). It is the Examiner's position that if the aforementioned granular product is homogeneous if it is produced from a molten state.

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to combine the teachings of Alyeshmerni, Dean et. al., and Freepons and produce the instant invention. One would be motivated to combine these teachings because complexing agents such as humic acid and the metal microelements serve as a carbon skeleton agent and to solubilize other components which may precipitate and become assailable or may immobilize minerals in the soil (Dean et al., column 7, lines 60-end and column 8, lines 1-24). Water and surfactants are used to facilitate the application of the composition to the plant (Dean et al., column 5, and lines 13-25). Additionally, Freepons teaches the use of molten mixtures produces granular products that do not leave harmful or useless deposits in the soil. It would be prima facie obvious to combine two compositions each of which is taught by the prior art to be

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useful for the same purpose in order to form a third composition that is to be used for the very same purpose; the idea of combining them flows logically from their having been individually taught in prior art." *In re Kerkhoven* 206 USPQ 1069, 1073. Thus, combining Alyeshmerni with Dean et. al as claimed in the instant invention sets forth prima facie obvious subject matter. Alyeshmerni teaches a homogeneous formulation (page 8, lines 28-30) and according to Merriam-Webster's online dictionary, homogeneous means of uniform structure or composition throughout. Therefore, the limitation of claim 1 wherein the MPK nutrient is uniform in particle size is taught by Alyeshmerni. The examiner notes that Applicant claims a synergistic mixture of the additives and the metal microelements with the salts of phosphorous acid. The Examiner notes that the examples of the specification do not disclose data that shows the synergistic effects of the combination of the additives or the metal microelements with the salts of phosphorous acid. Therefore, the examiner cannot determine if the combination of the additives or the metal microelements would produce the purported synergism when combined with the salts of phosphorous acid. Therefore, the examiner notes that the claims are not commensurate in scope. In reference to the composition being completely dissolved when mixed with water at an ambient temperature in a ratio of 10 parts of solid to 90 parts of water or 20 parts of solid to 80 parts of water, those limitations are met when the formulation has a pH of 3.8-5.3. This pH range is taught by Alyeshmerni. Additionally, it is routine optimization for one of ordinary skill in the art to adjust the amount of ingredients to optimize the desired results. In this case the weight

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percent ranges of the salt of phosphorous acid, NPK nutrients, metal microelements, and water components are routine optimization.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Therefore, the claimed invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made because every element of the invention has been fairly suggested by the cited reference.

Examiner's Response to Applicant's Remarks

Applicant's arguments filed on May 19, 2009, with respect to the 103 rejection of claims 1,2,4-6,8-10,12-19,21,23,24,26, and 40 under 35 U.S.C. 103(a) as being unpatentable over Alyeshmerni (WO 00/76941 A1) in view of Dean et al., (US Patent 6,245,717 B1) and Freepons (US Patent 5,139,555) have been fully considered but they are not persuasive.

Applicant argues that none of the above-cited references, taken alone or in combination, teaches or suggests a solidified molten homogeneous mixture containing phosphorous acid, wherein said melting temperature has been from 60°C to 130°C. However, the Examiner disagrees with this argument for the following reasons. First, the claims read on a solid mixture of phosphoric acid and at least on other NPK nutrient,

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metal microelements and a base selected from potassium carbonate and potassium hydroxide of uniform particle size containing from 0-1% water. The process steps are not provided weight as discussed in more detail below. Secondly, The primary reference Alyeshmerni, does teach the use of phosphorous acid (see page8, lines 6-12 and figure1) in a solid or granular fertilizer formulation with the NPK nutrients and other elements (page 9, lines 15-24). The teaching of Freepons was joined to show that a fertilizer that is not harmful to the soil that resulted from a molten homogeneous mixture was known at the time of the instant application. Further, a fertilizer that is in the form of a granule, was in a molten homogeneous state before hardening to a solid. Molten means one thing and solidified is contrary to molten. Therefore, a "solidified molten homogeneous mixture" is not possible. One of ordinary skill in the art knows that it is possible to have a molten mixture or a solid mixture but not both simultaneously.

Applicant argues that Freepons, whose compositions are distinct from the compositions of the present invention, teaches the use of a solidified soluble material having plant nutritive value such as urea and ammonium nitrate (column 8, lines 17-19) as a possible binding agent. Applicant contends that urea and ammonium nitrate, either alone or in combination, are commonly used in the agricultural field for both their nitrogen nutritive values and their binding properties, for example in the formation of agrochemical prills (see Freepons, column 8, lines 24-25). Applicant argues that the present invention teaches granules made from a solidified mixture of molten phosphorous acid. However, the Examiner disagrees with this argument. As previously stated, a fertilizer that is in the form of a granule, was in a molten

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homogeneous state before hardening to a solid. In support of this argument, the teaching of Freepons was joined to show that granular fertilizer products are produced from a molten state (see column 8, lines 19-26). In addition, Freepons teaches that the use of ammonium nitrate and urea, which are **NPK nutrients**, as instantly claimed, produces a granule that is also compatible with the soil, biodegradable, soil conditioning or have plant nutrient value (see column 7, line 67 bridging to column 8, lines 1 and 2).

In reference to the 'surprising physical properties' on page 5 of 9 of Applicant's arguments (i.e., free flowing, non-caking and low hygroscopicity), Rutland (see the newly attached NPL reference) teaches that the most important factor influencing caking of fertilizers include the fertilizer's moisture content (see page 2, paragraph 2 of Rutland). Alyeshmerni teaches reacting a phosphorous-containing acid with a base such as KOH, and harnessing the exothermic heat generated to effectively evaporate water, thereby leaving a relatively pure, concentrated fertilizer (see page 5, lines 29-33) and page 13, lines 9-11 teaches that the reaction gets hot enough to evaporate water and render the fertilizer substantially devoid of molecular water. Thus, free flowing, non-caking and low hygroscopicity are not 'surprising physical properties' due to the fertilizer's low moisture content as instantly claimed and taught by Alyeshmerni.

In reference, to the limitation wherein the instant invention is produced at a temperature of from 60°C to 130°C resulting in a uniform particle size containing from 0% to 1% water, as previously stated, Alyeshmerni teaches reacting a phosphorous-containing acid with a base such as KOH, and harnessing the exothermic heat generated to effectively evaporate water (which is done at **100°C**), thereby leaving a

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relatively pure, concentrated fertilizer (see page 5, lines 29-33) and page 13, lines 9-11 teaches that the reaction gets hot enough to evaporate water and render the fertilizer substantially **devoid of molecular water**. Further, claims 1 and 40 are product-by-process claims. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Therefore, the Examiner has established that the claimed free-flowing agrochemical composition is prima facie obvious over Alyeshmerni in view of Dean et al. and Freepons.

Conclusion

The claims remain rejected.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR Only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electron Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Courtney Brown, whose telephone number is 571-270-3284. The examiner can normally be reached on Monday-Friday from 8 am

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to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Courtney A. Brown
Patent Examiner
Technology Center 1600
Group Art Unit 1616

/Ernst V Arnold/
Primary Examiner, Art Unit 1616